

What is claimed is:

1. A method of detecting a violation of a block boundary on a disk, comprising:
generating a block boundary signal indicative of a boundary between error correction code (ECC) blocks using block address information recorded on the disk;
detecting a phase difference between the block boundary signal and an encoding block synchronous signal; and
detecting whether a violation of the boundary occurs according to a magnitude of the detected phase difference.
2. The method as recited in claim 1, wherein the detecting of the phase difference comprises:
generating a window signal indicative of a recording allowable range based on the block boundary signal; and
performing a logic operation on the window signal generated indicative of the recording allowable range and the encoding block synchronous signal and detecting whether an encoding block boundary is within the allowable range.
3. The method as recited in claim 2, wherein the detecting the phase difference further comprises:
generating window signals detecting whether a phase of the block boundary signal leads a phase of the encoding block synchronous signal or whether the phase of the block boundary signal lags the phase of the encoding block synchronous signal; and
detecting whether a violation of the boundary occurs by performing a logic operation on the window signals detecting whether the phase of the block boundary signal leads the phase of the encoding block synchronous signal and the encoding block synchronous signal.
4. The method as recited in claim 1, wherein the disk is one of a DVD-R disk, a DVD-RW disk, a DVD+RW disk, a CD-R disk, and a CD-RW disk.
5. The method as recited in claim 1, wherein the generating of the block boundary signal uses block address information of the ECC blocks recorded on the disk.
6. The method as recited in claim 1, wherein the disk is a DVD-R/RW disk and the address information of the ECC blocks is recorded in a land of the disk.

7. The method as recited in claim 1, wherein the disk is in a DVD+RW disk and the address information of the ECC blocks is recorded as a wobble signal.

8. The method as recited in claim 1, further comprising:
normally recording in response to the phase of the block boundary signal being consistent with the phase of the encoding block synchronous signal.

9. The method as recited in claim 8, wherein the normally recording comprises recording the encoding block from the boundaries between the ECC blocks on the disk.

10. The method as recited in claim 1, further comprising performing an error correction to provide for a margin of error between a phase of the block boundary signal and a phase of the encoding block synchronous signal.

11. The method as recited in claim 1, further comprising:
determining whether a phase of the block boundary signal is consistent with a phase of the encoding block synchronous signal within a window signal having a width determined by considering a margin of error.

12. The method as recited in claim 1, further comprising:
abnormally recording in response to the phase of the block boundary signal being inconsistent with the phase of the encoding block synchronous signal.

13. The method as recited in claim 12, wherein the abnormally recording comprises stopping recording by generating an interrupt signal.

14. The method as recited in claim 2, wherein the logic operation is an AND operation.

15. A method, comprising:
preventing abnormal recording on a disk recording apparatus by detecting inconsistencies between an encoding block and an error correction code block on a disk.

16. The method as recited in claim 15, further comprising:
 receiving a signal from the disk and generating a block boundary signal therefrom,
 wherein each boundary between blocks is determined by the signal from the disk;
 generating a first window signal detecting whether a phase of the block boundary
 signal leads a phase of an encoding block synchronous signal from the encoding block;
 generating a second window signal detecting whether the block boundary signal and
 the encoding block synchronous signal exist within a range;
 generating a third window signal detecting whether the phase of the block boundary
 signal lags the phase of the encoding block synchronous signal;
 comparing the encoding block synchronous signal with the first window signal and
 outputting a first interrupt signal;
 comparing the encoding block synchronous signal with the second window signal
 and outputting a second interrupt signal;
 comparing the encoding block synchronous signal with the third window signal and
 outputting a third interrupt signal; and
 recording, stop recording, according to the states of the first interrupt signal, the
 second interrupt signal, and the third interrupt signal.

17. The method as recited in claim 16, further comprising:
 adding an error correction code to the block boundary signal;
 generating the encoding block; and
 outputting the encoding block with the encoding block synchronous signal.

18. The method as recited in claim 17, wherein:
 the first window signal continues from a middle of a previous ECC block to a start of
 the second window signal,
 the second window signal comprises a width determined by considering a margin on
 the basis of the block boundary signal, and
 the third window signal continues from an end of the second window signal to a
 middle of a next ECC block.

19. A method, comprising:
 determining whether a violation of a block boundary occurs on a disk by determining
 a phase difference between a block boundary signal and an encoding block synchronous
 signal.

a third window signal generator generating a third window signal detecting whether the phase of the block boundary signal lags the phase of the encoding block synchronous signal; and

a first logic gate and a third logic gate performing a logic operation on the first window signal, the third window signal, and the encoding block synchronous signal and detecting therefrom whether the block boundary signal and the encoding block synchronous signal are within a recording allowable range.

23. The apparatus as recited in claim 22, wherein the boundary violation detector further comprises:

a second window signal generator generating a second window signal indicative of the recording allowable range based on the block boundary signal; and

a second logic gate performing a logic operation on the second window signal and the encoding block synchronous signal and detecting therefrom whether the block boundary signal and the encoding block synchronous signal are within the recording allowable range.

24. The apparatus as recited in claim 21, wherein the disk is one a DVD-R disk, a DVD-RW disk, a DVD+RW disk, a CD-R disk, and a CD-RW disk.

25. The apparatus as recited in claim 22, wherein the first logic gate and the third logic gate are AND gates.

26. The apparatus as recited in claim 23, wherein the second logic gate is an AND gate.

27. A disk recording apparatus, comprising:

a block boundary violation detector preventing abnormal recording on the disk recording apparatus by detecting inconsistencies between an encoding block and an error correction code block on a disk.

28. The disk recording apparatus as recited in claim 27, wherein the boundary violation detector comprises:

an LPP and/or ADIP decoder receiving a signal from the disk and generating a block boundary signal therefrom, wherein each boundary between blocks is determined by the signal from the disk;

a first window signal generator generating a first window signal detecting whether a phase of the block boundary signal leads a phase of an encoding block synchronous signal from the encoding block;

a second window signal generator generating a second window signal detecting whether the block boundary signal and the encoding block synchronous signal exist within a range;

a third window signal generator generating a third window signal detecting whether the phase of the block boundary signal lags the phase of the encoding block synchronous signal;

a first logic gate comparing the encoding block synchronous signal with the first window signal and outputting a first interrupt signal;

a second logic gate comparing the encoding block synchronous signal with the second window signal and outputting a second interrupt signal;

a third logic gate comparing the encoding block synchronous signal with the third window signal and outputting a third interrupt signal; and

a recorder and a microprocessor recording, stop recording, according to the states of the first interrupt signal, the second interrupt signal, and the third interrupt signal.

29. The disk recording apparatus as recited in claim 28, further comprising:

a DVD encoder adding an error correction code to the block boundary signal, generating the encoding block, and outputting the encoding block with the encoding block synchronous signal.

30. The disk recording apparatus as recited in claim 28, wherein:

the first window signal continues from a middle of a previous ECC block to a start of the second window signal,

the second window signal comprises a width determined by considering a margin on the basis of the block boundary signal, and

the third window signal continues from an end of the second window signal to a middle of a next ECC block.

31. The disk recording apparatus as recited in claim 28, wherein the LPP and/or ADIP decoder generates a pulse for each boundary between blocks and outputs the pulse as the block boundary signal.

32. The disk recording apparatus as recited in claim 28, wherein the first logic gate, the second logic gate, and the third logic gate are AND gates.

33. A disk recording apparatus, comprising:
a boundary violation detector determining whether a violation of a block boundary occurs on a disk by determining a phase difference between a block boundary signal and an encoding block synchronous signal.

34. The disk recording apparatus as recited in claim 33, wherein the boundary violation detector comprises:

an LPP and/or ADIP decoder receiving a signal from the disk and generating a block boundary signal therefrom, wherein each boundary between blocks is determined by the signal from the disk;

a first window signal generator generating a first window signal detecting whether a phase of the block boundary signal leads a phase of an encoding block synchronous signal from the encoding block;

a second window signal generator generating a second window signal detecting whether the block boundary signal and the encoding block synchronous signal exist within a range;

a third window signal generator generating a third window signal detecting whether the phase of the block boundary signal lags the phase of the encoding block synchronous signal;

a first logic gate comparing the encoding block synchronous signal with the first window signal and outputting a first interrupt signal;

a second logic gate comparing the encoding block synchronous signal with the second window signal and outputting a second interrupt signal;

a third logic gate comparing the encoding block synchronous signal with the third window signal and outputting a third interrupt signal; and

a recorder and a microprocessor recording, stop recording, according to the states of the first interrupt signal, the second interrupt signal, and the third interrupt signal.

35. The disk recording apparatus as recited in claim 34, further comprising:
a DVD encoder adding an error correction code to the block boundary signal, generating the encoding block, and outputting the encoding block with the encoding block synchronous signal.

